

AMENDMENTS TO THE CLAIMS

The listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) In a computerized network environment including a client system, a network provider, and one or more devices that can be accessed locally or over a network, a method for providing the client system access to one or more of the devices through the network provider, the method comprising the following:

an act of identifying the one or more devices that can be accessed locally or over a network that includes a plurality of devices having unique device identifiers, wherein the one or more devices includes at least one device that is a virtual SCSI device accessible through an iSCSI protocol;

an act of generating a target that identifies a set of the one or more devices, and that includes at least one corresponding unique device identifier, wherein the set of one or more devices is determined based on each of the devices having at least one common group of clients authorized to access the device, and wherein a plurality of logical unit numbers (LUNs) are assigned to the unique device identifier corresponding to the set of one or more devices, wherein the plurality of LUNs are relevant only within the target corresponding to the set of one or more devices, such that multiple devices, partitions, and files can be assigned at least a same LUN ~~one or more~~ of the plurality of LUNs;

an act of associating client authorization information identified by the network provider with the target that identifies the set of the one or more devices; and

an act of dynamically assigning the target to a port through a protocol-independent port driver at the network provider, such that only clients authorized by the associated client information are allowed to access the assigned port, thereby allowing only the clients access to the set of the one or more devices through the target, wherein the assignment of the port is dependent upon load balancing of the network provider.

2. (Previously Presented) The method as recited in claim 1, wherein the set of the one or more devices can be accessed locally through a local access protocol.

3. (Previously Presented) The method as recited in claim 1, wherein the set of the one or more devices is a network device that can be accessed on a network through a network access protocol.

4. (Previously Presented) The method as recited in claim 1, wherein the act of identifying a set of one or more devices further includes an act of creating one or more devices that can be accessed over the network.

5. (Previously Presented) The method as recited in claim 4, wherein the act of creating one or more devices includes an act of identifying at least one of a partition or file, wherein the at least one of a partition or file represents at least a portion of one of the set of one or more devices, and wherein the at least one of the partition or file can be configured by the network provider to provide the client modifiable access to the portion of the set of one of the one or more devices, and wherein the at least one of the partition or file is assigned one of the LUNs.

6. (Original) The method as recited in claim 1, further comprising an act of providing client access to one or more of a port, a WWN, and a portal through the protocol-independent port driver, such that the protocol-independent port driver is accessed through one or more protocol-dependent mini-ports.

7. (Original) The method as recited in claim 6, wherein the protocol-independent port driver and one or more protocol-dependent mini-port drivers are managed by the centralized service, and wherein the one or more protocol-dependent miniport drivers plug-in to the protocol-independent port driver.

8. (Original) The method as recited in claim 7, wherein at least one of the one or more protocol-dependent miniport drivers communicates through one or more of an Ethernet, Token Ring, fiber channel, USB, or wireless protocol.

9. (Cancelled).

10. (Previously Presented) The method as recited in claim 1, wherein the virtual SCSI device is a storage device, and the network comprises a storage area network.

11. (Original) The method as recited in claim 10, wherein the storage device is one or more of an internal or external magnetic storage medium, an optical storage medium, and a tape backup drive.

12. (Original) The method as recited in claim 1, wherein the network provider manages one or more targets, one or more drivers, and authentication information for one or more clients through a centralized directory service.

13. (Original) The method as recited in claim 12, wherein the network device identifier is identified by a target name and a LUN that has been assigned to the at least one device by the centralized directory service.

14. (Cancelled).

15. (Currently Amended) In a computerized network environment including a client system, a network provider, and one or more devices that can be accessed locally or over a network, a computer-readable storage media having stored thereon computer-executable instructions that when executed, cause a computing system to perform a method for providing the client system access to one or more of the devices over the network through the network provider, the method comprising the following:

an act of identifying a set of the one or more devices that can be accessed locally or over a network that includes a plurality of devices corresponding to unique device identifiers, wherein the one or more devices includes at least one device that is a virtual SCSI device accessible through an iSCSI protocol;

an act of generating a target that identifies the set of the one or more devices, and that includes at least one corresponding unique device identifier, wherein the set of one or more devices is identified based on each of the devices having at least one common group of clients authorized to access the devices, and wherein a plurality of logical unit numbers (LUNs) are assigned to the unique device identifier corresponding to the set of one or more devices, wherein the plurality of LUNs are relevant only within the target corresponding to the set of one or more devices, such that multiple devices, partitions, and files can be assigned a same one ~~at least one or more~~ of the plurality of LUNs;

an act of associating client authorization information identified by the network provider with the target that identifies the set of the one or more device, wherein only clients having client authorization information associated with the target can access the devices identified by the target; and

an act of dynamically assigning the target to a port through a protocol-independent port driver at the network provider, such that only clients authorized by the associated client information are allowed to access the assigned port, thereby allowing only the clients access to the set of the one or more device through the target, wherein the assignment of the port is dependent upon load balancing of the network provider.

16. (Previously Presented) The computer-readable storage media as recited in claim 15, wherein the set of the one or more devices can be accessed locally through a local access protocol.

17. (Previously Presented) The computer-readable storage as recited in claim 15, wherein the set of the one or more devices is a network device that can be accessed on a network.

18. (Previously Presented) The computer-readable storage media as recited in claim 15, wherein the act of identifying a set of one or more devices further includes an act of creating one or more devices that can be accessed over the network.

19. (Previously Presented) The computer-readable storage media as recited in claim 18, wherein the act of creating one or more devices includes an act of identifying at least one of a partition and file, wherein the at least one of a partition and file represents at least a portion of one of the one or more devices, and wherein the at least one of a partition and file can be configured by the network provider to provide the client modifiable access to the portion of the one of the one or more devices.

20. (Previously Presented) The computer-readable storage media as recited in claim 15, with the method caused by the execution of the computer-executable instructions further comprising an act of providing client access to one or more of a port, a WWN, and a portal through the protocol-independent port driver, such that the protocol-independent port driver is accessed through one or more protocol-dependent mini-ports.

21. (Previously Presented) The computer-readable storage media as recited in claim 20, wherein the protocol-independent port driver and one or more protocol-dependent mini-port drivers are managed by the centralized service, and wherein the one or more protocol-dependent miniport drivers plug-in to the protocol-independent port driver.

22. (Previously Presented) The computer-readable storage media as recited in claim 21, wherein at least one of the one or more miniport drivers communicates through one or more of an Ethernet, Token Ring, fiber channel, USB, or wireless protocol.

23. (Cancelled).

24. (Previously Presented) The computer-readable storage media as recited in claim 15, wherein the virtual SCSI device is a storage device, and the network comprises a storage area network.

25. (Previously Presented) The computer-readable storage media as recited in claim 24, wherein the storage device is one or more of an internal or external magnetic storage medium, an optical storage medium, and a tape backup drive.

26. (Previously Presented) The computer-readable storage media as recited in claim 15, wherein the network provider manages one or more targets, one or more drivers, and authentication information for one or more clients through a centralized directory service.

27. (Previously Presented) The computer-readable storage media as recited in claim 26, wherein the device identifier is identified by a target name and a LUN that has been assigned to the at least one device by the centralized directory service.

28. (Previously Presented) The computer-readable storage media as recited in claim 27, wherein the LUN of the device identifier is assigned the unique device identifier of the target, and to one or more of: a plug-and-play identifier for a device, a global unique identifier for a device; a device driver that interfaces with a device; or least one of a partition or file that represents a portion of a device.

29. (Previously Presented) In a computerized network environment including a client system, a network provider, and one or more devices that can be accessed locally or over a network, a method for providing the client system access to one or more of the devices over the network through the network provider, the method comprising the following:

an act of identifying a set of the one or more partitions or files representing portions of devices that can be accessed locally or over a network, the set being based on one or more partitions or files having commonly authorized client access and consisting of only partitions or files to which the client has been assigned and to which the client is to be provided access, wherein the one or more partitions or files are on at least one device that is a virtual SCSI device accessible through an iSCSI protocol;

an act of generating a target that identifies the set of the one or more partitions or files, and that includes at least one corresponding device identifier, wherein the set of one or more partitions or files is identified based on each of the devices having at least one common group of clients authorized to access the devices, and wherein the at least one corresponding device identifier is a logical unit number (LUN) assignable to multiple, different partitions or files, and which is given relevance only when associated with a unique device identifier;

an act of associating client authorization information identified by the network provider with the target that identifies the set of the one or more partitions or files; and

a step for dynamically exposing the set of the one or more partitions or files to the client through a specific one of a dynamically assigned network port, a WWN, and a portal, such that the client can access the set of the one or more partitions or files identified by the target when the client has access to the specific one of a dynamically assigned network port, a WWN, and portal, and when the client presents the associated client authorization to the network provider.

30. (Previously Presented) The method as recited in claim 29, wherein the step for exposing the set of the one or more devices to the client through a specific one of a network port, a WWN, and a portal comprises:

an act of assigning the target to a port through a protocol-independent port driver at the network provider; and

an act of providing client access to the specific one of a port, a WWN, and a portal through the protocol-independent port driver, such that the protocol-independent port driver is accessed through one or more protocol-dependent mini-ports.

31. (Original) The method as recited in claim 30, wherein the client is provided access to the specific one of a port, a WWN, and a portal by virtue of being authenticated at one or more of a local centralized service provider, and a remote authentication database.

32. (Previously Presented) In a computerized environment including a client computer and a storage service provider on a storage area network, the storage service provider comprising one or more storage devices, a method of providing the client computer with access to one or more of the storage devices on the storage service provider through an iSCSI protocol, the method comprising the following:

an act of identifying one or more device identifiers corresponding to one or more partitions or files representing storage devices on a storage service provider, wherein the partitions or files allow access to portions of the storage devices and enable a first device type to emulate a second device type, wherein the one or more device identifiers includes a target name and a LUN that has been assigned to the one or more partitions or files by a centralized directory service;

an act of receiving from the centralized directory service a modifiable client resource that identifies client authorization to access the storage device, and a portion of the storage device that the client can access, wherein the centralized directory maintains authentication information for the client, and at least one of a work group identity, network location, and physical location, and further maintains LUN information for the one or more partitions or files and configuration information defining how the client accesses a partition or file representing a storage device, wherein the centralized directory service includes the same LUN assigned to multiple, different partitions or files, such that a LUN has relevancy only within a particular target;

an act of creating a target containing a plurality of logical unit numbers that have been assigned to the identified device identifiers, the target consisting of only logical units numbers to which the client has been assigned and to which the client is to be provided access, wherein the client can access only those storage devices represented by a logical unit number contained in the target using storage service provider, and wherein access to the target is provided according to the modifiable client resource;

an act of providing the client computer access to the file or partition representing the storage device identified by the target through a client-restricted port on the storage service provider, wherein the client restricted port is dynamically assigned by the centralized directory service based on storage service provider load balancing and failover protection, such that when the client has knowledge of, access to, the client-

restricted port, the client can access the storage device by providing the storage service provider with client authorization and a Uniform Resource Locator including the dynamically assigned port number.

33. (Original) The method as recited in claim 32, wherein centralized directory service receives client access information from at least one of a local and remote database.

34. (Cancelled)

35. (Original) The method as recited in claim 32, wherein the client-restricted port is managed by the centralized service and a protocol-independent port driver that receives network traffic through one or more protocol-dependent mini-port drivers.

36. (Original) The method as recited in claim 35, wherein the one or more protocol-dependent mini-port drivers are plug-ins to the protocol-independent port driver.

37. (Currently Amended) The method as recited in claim 36, wherein at least one of the one or more mini-port drivers communicates through ~~one or more of an Ethernet, a Token Ring, USB, fiber channel, or wireless connection~~ protocol.